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CADD STANDARDS MANUAL

Prepared By

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GENERAL STANDARDS

1.1 INTRODUCTION

This manual presents standards/guidelines for the preparation of highway plans for the State of New Jersey Department of Transportation, utilizing Computer Aided Design and Drafting equipment (CADD) and methods. Inquiries regarding the contents of this document should be directed to the CADD Support Unit, in the person of Bruce Cosaboom at (609)530-3676.

The CADD Support section of the Division of Design Services has established a World Wide Web page on the Internet from which the public can download many files, including this document, used in CADD operations at NJDOT. The address of this page is:

"http://www.state.nj.us/transportation/design"

The NJDOT CADD Standards Manual is a Microsoft WORD document. The files are stored on the web in "PKZIP" compressed format. The "PKZIP" program needed to uncompress the files can be downloaded from PKWARE Inc. A link is provided to their web page from our page.

1.2 CHANGES TO THE STANDARD

The NJDOT CADD system is an evolving process. In general, changes to the system occur because of three factors: 1) additional users and functionality; 2) discovery of, and subsequent fixing of flaws or bugs; 3) changes to utilize advantages of more current technology and software versions. Most of the time, one or more of the above factors are causing changes to the Standard. Therefore it is reasonable to expect frequent updates to this document. Users of this document are cautioned to frequently check the web page for changes hereto, in order to ensure that they also are using the latest version. We will place the latest revision date next to the icon on the web page, which may be compared to the "revisions page" in your last copy of the document.

1.3 PLATFORMS

The Department currently utilizes Bentley and Intergraph software running on primarily Intergraph UNIX Workstations. Migration to the Windows NT operating system is well underway. The significance of this lies in the intentions of the Department to make all of its CADD customization publicly available ASAP.

Bentley Systems' Microstation is the basic graphics engine utilized throughout the Department on all hardware platforms. The standards presented herein are for Version 5.0.

Other software packages on which the Department is currently standardized include Intergraph INROADS, ETI (surveying; runs only on UNIX), and IPLOT.

1.4 ADDITIONAL GUIDANCE FOR CONSULTANTS

The issuance of this Standard does not, in and of itself, mandate adherence hereto by consulting firms. A Consultant is currently only required to meet the requirements of various sections of this Standard as appropriate to the project scope, or in accordance with the contract language for the project. As the Department converts to a Windows NT operating system for its CADD operations, it is our intent to make our customized portions publicly available, at which time Engineering firms that perform work for the DOT may be expected to comply with these standards as a specification for CADD work.

1.5 GRAPHIC CONCEPTS

Design files (.dgn) can contain both vector and non-vector elements. The vector design files can contain text, lines, arcs, shapes and grouped elements. Grouped elements are either cells, graphic groups, or complex elements. Non-vector elements include raster or binary data.

Microstation 5.0 design files contain 63 levels (layers) for placing elements. Graphic elements shall be separated by level depending on the final uses of the file. For example, many elements shown on a particular plan sheet may not be needed on another. By placing elements on different levels the designer can control which elements are displayed and which are not.

Design files can also be referenced to other design files or even themselves. Referencing allows one drawing to be used as a base for several other types of plan sheet(s), yet remain independent of that drawing. By using reference files, base data (placed in what the DOT calls "base files") need be drawn only once; it can then be referenced into the other types of plan sheets (called "sheet files"). Not only does this save system memory, but also as the base data is updated, the changes are seen in the files referencing them. Use of reference files is an essential element of the NJDOT Standard CADD System.

1.6 SHEET FILES

Sheet files are design files that display information for a specific type plan sheet (construction, tie and grade, etc.). These are the files from which hard copy is typically plotted to produce a set of plans. The only elements in the sheet file are the sheet border, north arrow, street names, and elements unique to that particular plan sheet. All other data is referenced in from base files.

1.7 BASE FILES & BASE FILE TEXT

Base files contain the basic topographic information of a project, as well as all other information which is pertinent to, or resulting from, the design process, i.e. property lines, monuments, baselines, traverses, proposed design features, etc. In such a file, this information is represented from end-to-end of the geography which the project covers (as opposed to the limited length of information that is presented on a plan sheet). Text in base files is often needed in specific sheet files. However, it may need to be moved so it does not conflict with other sheet information (in some sheets it may not be required at all). In order to accommodate this requirement NJDOT has employed GRAY NON-PLOTTING TEXT. This text in base files will not plot unless copied into the sheet file and modified.

1.8 GRAPHIC STANDARDS

The following graphic standards are considered generic and common to all internal DOT users. Standards considered specific to individual work groups will be addressed in the appropriate subsequent sections of this manual. The fundamental goal of CADD is the computer automated preparation of plans that graphically meet conventional drafting standards as shown in NJDOT standard plans, and exchangeable digital CADD files. While other users of this Standard may make modification in order to get the files to work properly on their system, any digital files submitted to the DOT for subsequent CADD work to be performed by DOT require absolute adherence to this Standard in all aspects.

1.8.1 Plan Sheet Size

Unless otherwise specified through job specific contract language the final plan sheet size will be 841mm x 594mm, pending the general availability of metric

1.8.2 Working Units

The resolution and scaling of the design file affects the accuracy of the drawing. The working units, or number of positional units used to define the sub units and master units will determine the accuracy of the design file. The accepted working units for all drawing files will be meters, and millimeters.

UNIT NAMES:	Master Units : m
	Sub Units : mm
RESOLUTION:	1000 mm Per m

10 Positional Units Per mm

1.8.3 Scales

No scale will be associated with elements in a design file; drawings shall be done to real dimensions. For example, if telephone poles are 25 meters apart then they will measure 25 meters in the design file. Scaling of the final product is performed using plotting utilities. The plan scale for all sheets shall be 1:300 unless otherwise specified.

1.8.4 Cells

Standard cell libraries are available via the web page from the NJDOT for each discipline. Cells have been created so that they will appear correctly on the final scaled plan (i.e. a 154 mm gas/water value needs to be made larger than it really is so that it can be identified on a 1:300 scale plan).

1.8.5 Global Origin

Since most drawings utilize coordinate systems with positive X and Y values, the standard global origin is set to zero for the X and Y coordinates at the lower left corner of the X-Y plane. The Z coordinate, if used, shall be -214000.

1.8.6 Text

Text size and placement shall be in accordance with NJDOT standards. These sizes are selected for the express purpose of proper readability on the scaled plot. They have evolved to correlate with traditional Leroy Board sizes.

1.8.7 Font Libraries

Default Intergraph fonts 1 and 23 were modified to meet NJDOT requirements. The NJDOT font resource files are available on the web. InRoads work for the Department uses NJDOT fonts 95, 96, and 97.

1.8.8 Line Weights

The use of line weights to produce the graphic image shall be in accordance with NJDOT standards. Generally, existing features are shown thinner than the proposed work. In order to resolve the problems encountered when plotters of different resolution are used for output, a pen table is used. Our pen tables are available on the web page.

1.8.9 Line Styles

A variety of line styles are available in order to produce highway plans. The latest version of Microstation allows for user defined line styles. NJDOT user defined line style resource files are available on the web page (roadlines.dgn).

1.8.10 Levels

Graphic elements shall be placed on the levels called for by each discipline. Some types of plans may utilize extensive leveling schemes while others may be minimal. As with all of this Standard, adherence to specified levels is NOT optional.

1.8.11 Colors

Use of colors in design files will conform to the requirements of the specific discipline work group. The number of the color is more significant than the displayed color. NJDOT color tables for each discipline may be made available on the web page.

1.8.12 Reference Files

As mentioned previously, reference files are a powerful tool. It is mandatory that the rules for attaching and naming reference files be followed (see Roadway Section).

1.9 DELIVERABLES AND DATA EXCHANGE

Any exchange of data between the DOT and the A/E community will necessitate answering many questions about media, formats, etc. so that the exchange will be as efficient and printing processes in the at-large industry. The plotted Drawing Area shall be 775mm x 540mm.

1.9.1 Media

The accepted media for file exchange are: 650MB CD ROM, magnetic tape, removable (floppy) 3 ½"diskettes, and the Internet. Tape format is 8mm helical scan data tape (Exabyte Cartridge tape). We can accept tape densities up to 10 Gb. Media will have a label indicating how the files were loaded, and the contents, and should be accompanied with a supporting letter of documentation describing of the contents and downloading procedure.

NJDOT encourages the consultant community to use the Internet as another option for delivering/receiving electronic files. This could be accomplished through the consultant's own web page or through an "ftp" site that the consultant would establish. NJDOT does

not currently have an operational ftp site. All files that are to be transferred via the internet should be in PKZIP compressed format.

1.9.2 Format

Only files in standard file format (s) for the particular application used (i.e. Microstation 5.0; INROADS; etc.) will be accepted. The Intergraph format may also include those survey data files which serve as input to the Inroads product.

When survey data is required, it will be collected electronically utilizing the codes for the Intergraph MGE/ETI product and the NJDOT feature/preference codes. The deliverables will be the files produced by the ETI product. (.ICS, .ADF, .FLD, etc.). The original and edited field file will be provided to the Department as records of the survey.

Geometry files for baselines and surfaces will be in the INROADS .ALG and .DTM formats respectively. Any input files used to produce the final files will also be provided.

1.9.3 Deliverables

All graphics design (.dgn) files provided to the Department shall be compatible with the Microstation Version 5.0 format. When Microstation files are created by translating from a different format, the Consultant is solely responsible to ensure and verify that the required information has been translated correctly and completely, for the intended purpose. Anything that does not conform to our Standard will be returned for correction, without additional compensation or schedule allowance.

All support files will reside in the same directory (without subdirectories) and reference files shall be attached without device or directory specifications. Files shall be compressed using the Microstation "compress design" command before transfer to media, in order to remove deleted elements. All files (graphic and ASCII) necessary for accurate plan presentation shall be included. Hard copies of all electronic files and documentation shall be provided.

1.9.3.1 Survey Files

Where field survey information is to be submitted, the following MGE/ETI files will be provided for each downloaded field file.

1) .fld - Original and corrected files
2) .ics - With point descriptions per NJDOT standards.
3) .adf - With "midarc" commands and all pipe invert shots removed. No crossing of breaklines will be allowed.

4) .adj - only for the file that contains the traverse.
5) .cor - A complete listing of all points and figures in the survey.
6) .trv - The final adjusted report for the traverse.

In addition to the files listed above, the following will also be required as part of the final submission of survey information:

1) INROADS .alg file containing the completed survey, including the adjusted traverse and all baselines.
2) INROADS .dtm file(s) containing the completed existing surveyed surface. The maximum number points shall not exceed 130,000 for any single .dtm file.
3) Three 3D design files: one containing the cogo points and figures from the .ics files, for the traverse/baseline; the second containing topo survey points, descriptions, and figures; and the third containing the surface points and breaklines produced from the .adf files.

1.9.3.2 Aerial Photogrammetry

When mapping is produced from aerial photogrammetry, any survey information will be provided to the Department in the specified formats previously mentioned in Sec. 1.9.3. This includes all control points, traverses, baselines, or other information that is used in conjunction with producing the photogrammetric information. The design files with this information will be separate from the actual mapping files. The mapping files themselves will be drawn to the standards of the particular discipline requesting the mapping.

Standard Rules For Digitized Mapping:

1) No stream digitizing is allowed

2) There will be no scale associated with elements in the design file.

3) There will be no rotation associated with views.

4) Contour lines and their corresponding elevations shall be placed in a design file separate from the rest of the topography. The contour lines and the elevation text are to be placed on different levels. The contours and their elevations shall be drawn in a weight and size that meets the Department's standards when the design file is plotted at 1:300 for metric.

5) All existing baseline data, traverse information and ground ties shall be placed in a separate file. Stationing, bearings and curve data must be supplied for all baseline alignments. Monument information, if included, should also be in this file.

6) The coordinate system for all supplied files shall be an exact overlay to allow direct attachment of any reference file without manipulation.

7) If a graphically depicted grid system is supplied, it must be placed on a unique level or in a separate file.

8) All existing topographic features shall be placed in a separate design file as per CADD standards.

NOTE:
The .dtm files produced from aerial surveys MUST be free of any "holes" in the surface (except for large bodies of water). Additional ground survey will be required in obscured areas such as woods, or heavily shaded areas in order to provide a "complete" surface. The surveyed surfaces will be merged into the aerial survey surface as needed.

In the event that some other software is used to produce the engineering or survey data for a project, the Department may choose to accept data in ASCII format. When it has been determined that ASCII data will be accepted, the CADD Unit will provide the specific file formats that are required. Responsibility for correcting any file errors rests with the file provider.

SECTION 2

ROADWAY PLANS

2.1 INTRODUCTION

Strict adherence to these Standards is required for all in-house roadway design projects. Consultants must adhere to these standards only when they are providing files that will be used by the in-house operation, and they shall have been notified in advance of commencement of work. The standards are based on the design process at NJDOT.

2.2 DIRECTORY STRUCTURE (In-House Design only)

The information in this section is provided primarily to assist users of the system in understanding the basis for the file naming convention. Internally to the DOT, each organizational work unit has their own Unit Directory designated by a "unit code" letter, followed by the job number. All of the design files for which a unit is responsible shall reside in this directory, and the file name shall include the unit code. Only members of the unit will have "permission" (the ability) to alter these files, thus providing a degree of security against accidental corruption of a particular unit's work by another unit. Codes are the following:

UNIT	CODE	EXAMPLE	UNIT	CODE	EXAMPLE
Access	= a	(a1234567)	ITS	= I	(I1234567)
Bridge	= b	(b1234567)	Landscape	= l	(l1234567)
Drainage	= d	(d1234567)	Right of Way	= r	(r1234567)
Field Survey	= f	(f1234567)	Traffic	= t	(t1234567)
Geometrics	= g	(g1234567)	Utilities	=u	(u1234567)

In addition to the above "protected" directories, there is a Project Directory (p1234567) into which all units can log. This unprotected directory contains construction sheet files that require input from all units, and various design files which may be needed for plots.

2.3 STANDARDS

As explained in Sections 1.4, 1.5, and 1.6, there are two major categories of files, hereinafter referred to as "base files" and "sheet files". A naming convention has been established for each of these categories, and is detailed in the following sub-sections. Note that the convention that consultants may use, in some cases, is less complex than for in-house work.

All COGO files that are used to produce any of the design files listed, will be provided when requested by the Department and will be in the format required by NJDOT (Section 1.9).

2.3.1 Naming Convention For Base Files In-house File Format: filetype_?*.dgn

Table 2.1-a presents a summary of base files and the logical names with which they must be attached as reference files. Files are named so that all users can recognize the contents of a file by it's name. Base file names consist of the type file ("topo", "prop" etc.) followed by an underbar, (_); the unit code letter, (?), of the unit that prepares the work; and the sequential number, (*), of the particular type of file (eg. topo_f1). When selecting a logical name for a reference file, " # " represents the number of times that this particular base file is being attached to a particular sheet file(eg. eblf1, eblf2, eblf3...).

Consultants may conform to the above convention, or they may use the less restrictive forms that are shown in Table 2.1-b. Reference file naming would remain the same as shown in Table 2.1-a.

Some additional descriptive file information is included in the following sections.

2.3.1.1 ebase file

This base file contains the north arrow, control points existing baselines, station numbers and tickmarks, dimensions, etc.

2.3.1.2 topo file

This base file contains all topographic data required for a construction plan including: curbs, edge of road, poles lights, signs, driveways, ROW lines, trees, plants, sidewalks, utilities, sewers, manholes, fences, benchmarks, corporate lines, necessary text, etc. According to the format defined above, multiple topo files would be named topo_?1.dgn; topo_?2.dgn; topo_?3.dgn; etc.

2.3.1.3 contour file

Any existing or proposed contour lines and corresponding elevations shall be placed in a separate base file. Contour lines and elevation text will be placed on different levels. The digital terrain model used to produce the contour file will also be provided. When digital terrain models are developed from aerial mapping for use with the INROADS product, it is necessary to perform a ground survey where trees or other obstructions create a "hole" in the resulting surface.

2.3.1.4 pbase

This base file contains all proposed baseline data including; proposed baselines, control points, station numbers and tickmarks, dimensions, etc.

2.3.1.5 prop

This base file contains all proposed work including: curbs, edge of road, relocated poles, lights, signs monuments, driveways, ROW lines, sidewalks, utilities, drainage facilities, noise walls, guide rail, fences, benchmarks, easement lines, all necessary text, etc.

2.3.1.6 trav

This base file contains all traverse work including: traverse lines, control points, text, dimensions, etc.

2.3.1.7 deed

This base file contains plotted deed information.

2.3.1.8 stripe

This base file contains all proposed traffic striping delineators and raised pavement markers.

[SEE TABLES 2.1, A & B, NEXT PAGE]

Table 2.1-A Base File Naming Convention (In-house work)

UNIT NAME	DESIGN FILE NAME	LOGICAL NAME	DESCRIPTION OF CONTENTS
Field Survey	ebase_f*.eng	ebl f#	Existing English Baselines and information
	ebase_f*.dgn	ebl f#	Existing Metric Baselines and information
	trav_f*.dgn	trav f#	Traverse lines (not part of plans)
	topo*_2d.sav	sav#	Backup of final field dump
	topo_f*.dgn	topo f#	Existing Topography & Right of Way Lines
	deed_f*.dgn	deed f#	Plotted Deeds, Easements, & Property Information
	prop_f*.dgn	prop f#	Proposed Monuments
Goemetrics	pbase_g*.dgn	pblg#	Proposed Metric Baselines and Information
	prop_g*.dgn	propg#	Prop.Geometry Lines; Noisewalls; Driveways; Retaining Walls; Sidewalks.
	contour_g*.dgn	cong#	Contour lines and Elevations
	mxs_g*.dgn	mxsg#	Method of Cross-section lines
	layout_g*.dgn	layg#	Plan Sheet Index Cells
	grade_g*.dgn	grag#	Grade Ticks and Elevations
	tie_g*.dgn	tieg#	Non-plotting Ties and Dimensions
Geometrics	xsect_g*.dgn	xsecg#	Cross Sections
Drainage	prop_d*.dgn	propd#	Pipes; Inlets; Manholes; Small Headwalls; Culverts
Bridge	prop_b*.dgn	propb#	Bridge locations; Large Culverts & Headwalls
Right of Way	prop_r*.dgn	propr#	Proposed ROW Lines; Easements; Control Points
Traffic	stripe_t*.dgn	stpt#	Proposed Stripes & Non-plotting Labels
	prop_t*.dgn	propt#	Proposed Guide Rail; Fencing; GA & GO Sign Locations
Utilities	topo_u*.dgn	topou#	Updated Existing Utilities from Companies
	prop_u*.dgn	propu#	Proposed Utilities
Project ID	title.dgn	title	Title Block Information

Table2.1-B Base File Naming Convention (Option for Consultants)

DESIGN FILE NAME	DESCRIPTION OF CONTENTS
ebase.dgn	Existing Baseline & Related Information
topo.dgn	Existing Topographic Information (incl. Utilities)
trav.dgn	Traverse Information (that will not be part of the actual plans)
deed.dgn	Deed Lines and Information
pbase.dgn	Proposed Baseline & Information
prop.dgn	Proposed Construction Items & Information
contour.dgn	Contour lines and Elevations
mxs.dgn	Method of Section Lines and Labeling
layout.dgn	Plan Sheet Index Cells
grade.dgn	Grade Ticks & Elevations
tie.dgn	Ties & Dimensions
xsect##.dgn	Cross Sections
stripe.dgn	Proposed Stripes & Labeling

2.3.2 Sheet File Naming Conventions:

Most sheet file names fit a standard format, and are listed in Table 2.2-A. Those that do not fit this format are listed in Table 2.2-B.

The standard format is: UIDXXYY##.dgn, where:
UID = Directory Identification Number (3 characters)
XX = Scale Codes as follow:

Scale Code	Scale		Scale Code	Scale
z1	1:100		x1	1:1000
z2	1:200		x2	1:2000
z3	1:300		x3	1:3000
z4	1:400		…..	…..
z5	1:500		…..	…..
…..	…..		…..	…..
zn	1:z00		xn	1:n000

YY## : This four-character field must contain the sheet code and the number of that type of sheet within the job. For example, if the particular sheet was the 11th roadway construction sheet in the job, this field would read “cs11”.

Table 2.2-A Codes for Sheet Code Name & Number Field (YY##)

	YY##	SHEET DESCRIPTION
Project ID:	typ#	Typical Section Sheet
	lay#	Plan Sheet Layout
	cs##	Construction Plan Sheet (beginning with "cs02")
	dr##	Drainage Plan (if separate from construction plan)
	tg##	Tie & Grade Sheet (incl. alignment data sheet)
	gr##	Grade Sheet (if separate from Ties)
	mxs#	Method of Sections Sheet
	xs##	Cross Sections
	uc##	Utility Construction Plan
Geometrics:	jm##	Jurisdictional Limit Map
Traffic:	tc##	Traffic Control Plan Sheet
	hl##	Highway Lighting Plan Sheet
	ts##	Traffic Striping & Signing Plan Sheet
	sp##	Permanent Signing Plan Sheet (if separate from Traffic Striping)
	sgn#	Sign Text Sheet
Landscape:	ep##	Environmental Plan
	wm##	Wetlands Mitigation
Drainage:	ec##	Erosion Control
	se##	Stream Encroachment
Right of Way:	et##	Entire Tract Map
	gp##	General Property Parcel Map
	tab#	Tab Sheet
Utilities:	ut#*	Utility Relocation Plan # is the agreement number; * is the sequence letter

Table 2.2-B Additional Sheet File Names

FILE NAME	DESCRIPTION
"UID"legcs01.dgn	Standard Legend Sheet (1rst Construction Plan Sheet)
"JOBNUM"ck.dgn(see note)	Construction Key Map
"JOBNUM"rk.dgn(see note)	R.O.W. Key Map
"UID"bed#.dgn	Bed Sheet Plots (# is the number of sheets req'd)
pf_(description).dgn	Profiles (with a seven character description)
"UID"p######.dgn	Individual Parcel Map for ROW (w/ 6 spaces for parcel number)
b"#"l"#".dgn	Individual Parcel Map for Access (b# = Block No.; l# = Lot No.)
cd(detail#)_(unit code).dgn; OR cd(detail#).dgn	Modified Construction Detail Modified Construction Detail for Consultants
"UID"tcd##.dgn	Modified Traffic Control Detail
"UID"displa#.dgn	Public Display Maps

2.3.3 General Sheet File Descriptions

2.3.3.1 CONSTRUCTION PLAN SHEET

This file contains all the information specific to a construction plan sheet including: border, title block, federal project, municipality, north arrow, barscale, match lines, construct notes, existing and proposed boring symbols, easement lines, existing and proposed dimension lines, text for existing and proposed ROW and corporate lines, road names, high/low points, traffic direction arrows, beginning and ending project notes, etc. The base data will be referenced in from appropriate base files (EBASE, TOPO, PBASE, etc.) as necessary.

2.3.3.2 TIE AND GRADE PLAN SHEET

This file contains all information specific to a tie and grade sheet including: sheet border, north arrow, barscale, match lines, federal project block, north arrow, test pits, boring symbols, high and low point symbols, dimension lines, grade ticks, grade text, ROW lines, corporate lines, road names, etc. The base data will be referenced in from appropriate base files (EBASE, TOPO, PBASE, etc.) as necessary.

2.3.3.3 TRAFFIC STRIPING PLAN SHEET

This file contains all information found on a traffic striping plan including: sheet border, north arrow, barscale, match lines, federal project block, traffic stripes and legend, pavement marking for railroad crossings, lane dimension lines, delineators and legend, ROW lines, corporate lines, road names, general notes, etc. The base data will be referenced in from appropriate base files (EBASE, TOPO, PBASE, etc.) as necessary.

2.3.3.4 TRAFFIC CONTROL PLAN SHEET

This file contains all information found on a maintenance of traffic plan including: sheet border, north arrow, barscale, match lines, federal project block, drums, breakaway barricades, construction signs, traffic cones, lane dimensions, etc. The base data will be referenced in from appropriate base files (EBASE, TOPO, PBASE, etc.) as necessary.

2.3.3.5 TITLE.DGN

This file contains the information and outline of the title block found on each plan sheet. The project data is filled in once, and referenced into each plan sheet.

2.3.4 Level Assignments

Most of the named files have their own leveling requirements. A detailed listing of level assignments and element symbology is presented in the following tables.

[TABLES BEGIN ON NEXT PAGE]

Table 2.3 ebase_?*.dgn logical name = ebl?* Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or Name	Cell Name	Font	Text Size (meters)
Baseline - Tangents	2	22	0	0			
Baseline - Curves	2	23	0	0			
Control Points	2	24	1	0	CPOINT	23	0.75
Angle Points	2	24	1	0	APOINT	23	0.75
Station Tickmarks	3	24	0	0	TICKI		
Stations (500 or 1000 meter)	4	25	0	0		23	0.75
Stations (all others)	4	24	0	0		23	0.75
Control Point Leader Lines	5	18	0	2			
Angle Point Leader Lines	5	18	0	2			
Text for Baseline Information	5	18	0	0		23	0.75
Text for Road Names	5	18	3	0		23	1.00

Table 2.4 deed_?*.dgn logical name = deed?# Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Deed/R.O.W. Line	33	20	0	@row			
Deed Course Information	34	4	0	0		23	0.60

Table 2.5 trav_?*.dgn logical name = trav?# Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or Name	Cell Name	Font	Text Size (meters)
Traverse Lines	2	22	0	0			
Angle Points	2	24	1	8	APOINT	23	0 .75
Angle Point Leader Lines	5	18	0	2			
Text for Baseline Information	5	18	0	0		23	0 .75
Text for Road Names	5	18	3	0		23	1.00

TABLE 2.6 topo_?*.dgn logical name = topo?# Sheet 1 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Solid Edge Road Line	2	10	0	0			
Dashed Edge Road Line	2	10	0	@eor-dash			
Curbed Edge Road Line (lt. side)	2	10	0	@curb-it			
Curbed Edge Road Line (rt. side)	2	10	0	@curb-rt			
Guy Pole	5	17	0	0	4	23	0.60
Light Pole	5	17	0	0	8	23	0.60
Monuments	5	17	0	0	15 15A	23	0.60
Mailboxes	5	17	0	0	16 16A	23	0.60
Flag Pole	5	17	0	0	FLAG	23	0.60
Phone Booth	5	17	0	0	PB	23	0.60
Parking Meter	5	17	0	0	PM	23	0.60
Police or Fire Call Box	5	17	0	0	CBOX	23	0.60
Highway Signs	5	17	0	0	SIGN		
Vertical Panel	5	17	0	0	VP		
Small Metal/Wood Posts	5	17	0	0	MBP	23	0.60
Underground Utility Marker	5	3	0	0	MARKER	23	0.60
Gas Fill Valve	5	17	0	0	GAS	23	0.60
Oil Fill Valve	5	17	0	0	OIL	23	0.60
Vent Symbol (Generic)	5	17	0	0	VENT	23	0.60
Railroad Crossing Signals	5	4	0	0	RRS		
Railroad Lines	5	4	0	@etrack			
Slope Lines	5	10	0	2			
Paved Driveway Lines	5	3	0	0			
Unpaved Driveway Lines	5	3	0	3			
Draw Topo Features (non-defined)	5	3	0	0			
Text for General Information	5	4	0	0		23	0.60
Text for R.O.W. Lines	5	4	0	0		23	0.75
Text for Road Names	5	4	3	0		23	1.00
Text for Corporate Lines	5	4	3	0		23	1.00
Shrub	6	9	0	0	31B		
Swamp Land Indicator	6	9	0	0	SWAMP		
Hedge ROW	6	9	0	@hedge			
Wetland Limits	6	9	0	@ewet-limit			
Tree Line	6	9	0	@etree-line			
Trees	6	9	0	0	31 31A		
Tree Text (from field file)	41	9	0	0		23	0.60

Table 2.6 topo_?*.dgn logical name = topo?# Sheet 2 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
DOT Drainage - Inlets (Standard)	9	21	0	0	5	23	0.60
DOT Drainage - Inlets (Special)	9	21	0	0	5AL 5AR INEXL INEXR	23	0.60
DOT Drainage - Inlets (Bridge)	9	21	0	0	SCUPER		
DOT Drainage - Manholes (Standards)	9	21	0	0	6F 6G	23	0.60
Drainage - Manholes (Unknown)	9	21	0	0	6A 6AA	23	0.60
DOT Drainage - Headwalls	9	21	0	0	HOWL RCES RCESL HWA HWAL		
DOT Drainage - Structures	9	21	0	0			
DOT Drainage - Pipe	10	21	0	“tiliday” *pipe			
DOT Drainage - Flow Arrow	10	21	1	0	FLOW		
Text for DOT Pipes, Inverts & Grates	11	21	0	0		23	0.60
Electric Manhole	12	23	0	0	6H 61	23	0.60
Electric Line	12	23	0	@eelec-line		23	0.60
Telephone Manhole	13	22	0	0	6B 6C	23	0.60
Telephone Line	13	22	0	@etele-line		23	0.60
Gas Valve	14	27	0	0	19A 19B	23	0.60
Gas Vent	14	27	0	0	GVENT	23	0.60
Gas Line	14	27	0	@egas-line		23	0.60
Water Valve	15	21	0	0	18A 18B	23	0.60
Fire Hydrant	15	21	0	0	12A 12B	23	0.60
Water Line	15	21	0	@ewater-line		23	
Monitor Well	15	21	0	0	WELL	23	0.60
Sanitary Manhole	16	25	0	0	6D 6E	23	0.60
Sewer Vent	16	25	0	0	SVENT	23	0.60
Sanitary Line	16	25	0	“tilday” #pipe			
Sanitary Line - Flow Arrow	16	25	1	0	SFLOW		

Cable - Symbol	17	12	0	0		23	0.60
Cable Line	17	12	0	@ectv-line		23	0.60

Table 2.6 topo_?*.dgn logical name = topo?# Sheet 3 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Poles - Right Side	19	7	0	0	3B 3F	23	0.60
Poles - Left Side	19	7	0	0	3A 3E	23	0.60
DOT Electric - Traffic Signal	20	23	0	0	9		
DOT Electric - Traffic Control Box	20	23	0	0	TCB	23	0.60
DOT Electric - Meter Cabinet	20	23	0	0	MC	23	0.60
DOT Electric - Junction Box	20	23	0	0	10 11A 11B	23	0.60
DOT Electric - Fiber Optic Junction Box	20	23	0	0	EF0JB	23	0.60
DOT Electric - Manhole	20	23	0	0	ESHDB ESHDT	23	0.60
Guide Rail - Right Side	21	6	0	@egrail-rt			
Guide Rail - Left Turn	21	6	0	@egrail-it			
Breakaway Cable Terminal	21	6	0	0	37		
Beam Guide Rail Anchorage	21	6	0	0	38		
Wire Rope Guide Rail	21	6	0	@ewrrail			
Fences	22	6	0	@efence			
Benchmark Symbol	23	14	2	0	17	1	1.00
Noise Walls	25	13	0	@enoise-wall			
Easement Lines	31	20	0	@easement			
Corporate Lines	32	20	4	@corp-line			
No Access Lines	32	20	0	@no-acc-in			
Right of Way Lines	33	20	0	@row			

Table 2.6 topo_?*.dgn logical name = topo?# Sheet 4 of 4

Item	Level	Color	Weight	Line Code Number or Name	Cell Name	Font	Text Size (meters)
Transit Point	41	14	5	0	47	1	0.75
Sight Point	41	14	5	0	48	1	0.75
Misc. Plot Points	41	0	0	0		1	0.45
Non-plotting Gray Text	41	18	0	2			

Table 2.7 pbase_?*.dgn logical name = pbl?# Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Baseline - Tangents	2	22	2	4			
Baseline - Curves	2	23	2	4			
Control Points	2	24	1	0	PCPT	1	0.75
Angle Points	2	24	1	0	PAPT	1	0.75
Station Tickmarks	3	24	1	0	PTICKI		
Stations (500 or 1000 meter)	4	25	2	0		1	0.75
Stations (all others)	4	24	2	0		1	0.75
Control Point Leader Lines	5	18	1	2			
Angle Point Leader Lines	5	18	1	2			
Text for Baseline Information	5	18	2	0		1	0.75
Text for Road Names	5	18	3	0		1	1.00

Table 2.8 prop_?*.dgn logical name = prop?# Sheet 1 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Solid Edge Road Line	2	6	3	0			
Dashed Edge Road Line	2	6	3	@eor-dash			
Curbed Edge Road Line - (lt. side)	2	6	3	@pcurb-lt			
Curbed Edge Road Line - (rt. side)	2	6	3	@pcurb-rt			
Curbed Edge Driveway - (It. side)	2	6	3	@pcurb-lt			
Curbed Edge Driveway - (rt. side)	2	6	3	@pcurb-rt			
Paved Driveway Lines	5	3	4	0			
Unpaved Driveway Lines	5	3	4	3			
Monuments	5	17	0	0	15B		
Slopes Lines	5	6	4	2			
Text for General Information	5	4	2	0		1	0.75
Text for Road Names	5	4	3	0		1	1.00
Text for R.O.W. Lines	5	4	3	0		1	1.00
Wetland Limits	6	9	4	@pwet-limit			
DOT Drainage - Inlets (Standard)	9	21	1	0	20A 23A 23C 24A	1	0.75
DOT Drainage - Inlets (Special)	9	21	1	0	P5AR P5AL	1	0.75
DOT Drainage - Manholes (Standard)	9	21	1	0	20 23 23B 24 25		
DOT Drainage - Headwalls	9	21	1	0	PHDWL PRCES PRCESL PHWA PHWAL		
DOT Drainage - Structures	9	21	1	0			
DOT Drainage - Pipe	10	21	4	@prop-pipe			
DOT Drainage - Flow Arrow	10	21	1	0	FLOW		
Text for DOT Pipes, Inverts & Grates	11	21	2	0		1	0.75
Electric Manhole	12	23	1	0	6L 6M		
Electric Line	12	23	1	@pelec-line		1	0.75

Table 2.8 prop_?*.dgn logical name = prop?# Sheet 2 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Telephone Manhole	13	22	1	0	6J 6K		
Telephone Line	13	22	1	@ptele-line		1	0.75
Gas Valve	14	27	1	0	19C 19D		
Gas Line	14	27	1	@pgas-line		1	0.75
Water Valve	15	21	1	0	18C 18D		
Fire Hydrant	15	21	1	0	12C 12D		
Water Line	15	21	1	@pwater-line		1	0.75
Sanitary Manhole	16	25	1	0	6N 6P		
Sanitary Line	16	25	4	@prop-pipe			
Sanitary Line - Flow Arrow	16	25	1	0	SFLOW		
Cable - Symbol	17	8	1	0			
Cable Line	17	8	1	@pctv-line		1	0.75
Poles	19	7	0	PPOLE			
Poles - Temporary	19	7	0	TPOLE	1	75 (100)	
DOT Electric - Junction Box	20	23	1	0	PJB	1	0.75
Guide Rail - Right Side	21	6	1	@pgrail-rt			
Reset Guide Rail - Right Side	21	6	1	@rst-grail-rt			
Guide Rail - Left Side	21	6	1	@pgrail-lt			
Reset Guide Rail - Left Side	21	6	1	@rst-grail-lt			
Breakaway Cable Terminal	21	6	0	0	37A		
Beam Guide Rail Anchorage	21	6	0	0	38A		
Fences	22	6	1	@pfence			
Reset Fences	22	6	1	@rst-fence			
Noise Walls	25	13	6	@pnoise-wall			

Table 2.8 prop_?*.dgn logical name = prop?# Sheet 3 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Silt Fence	26	9	1	@psilt-fence			
Hay Bales	26	9		@phaybales			
Easement Lines	31	20	4	@easement			
No Access Lines	32	20	4	@no-acc-in			
Right of Way Lines	33	20	4	@row			
Right of Way Line Control Point	33	20	1		ROW10		
Non-plotting Gray Text	41	18					
Non-plotting Dimension Lines	41	18	0	2			

Table 2.9 stripe_?*.dgn logical name = stp?# Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
4” Dashed White Line	35	19	4	@tr-stripe			
4” Solid White Line	35	19	4	0			
4” Solid Yellow Line	35	19	4	0			
8” Solid White Line	35	19	6	0			
12” Solid White Line	35	19	8	0			
24” Solid White Line	35	19	8	0			
4” - 2’ Long Dashed White Line	35	19	4	@int-stripe			
Raised Pavement Markers	35	5	0		RPM		
Raised Pavement Markers: 3 Meter Spacing 6 Meter Spacing 12 Meter Spacing 24 Meter Spacing	 35 35 35 35	 5 5 5 5	 0 0 0 0	 @rpm-3m @rpm-6m @rpm-12m @rpm-24m			
Label Proposed Traffic Stripes	41	18	2	0		1	0.75
Non-plotting Dimension Lines	41	18	0	2			

Table 2.10 title.dgn logical name = title Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Title Block	1	0	7	0			
"NJDOT" Heading Text	1	0	1			1	1.00
"Route & Section" Text	1	7	2			1	1.30
Federal Project Block (See Note)	1	0	1	0			
Heading Text (see Note)	1	0	0			1	0.60
Drafted on CADD by (Unit name)	1	0	1	0		1	0.90
Note: Not shown on ROW sheets							

Table 2.11 Construction Key Sheet - uidz3ckey.dgn Sheet 1 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construction Key Map Sheet	1	6 0	4 (outside) 15 (inside)	3 0	CKEY		
Utility Company Block	1	0	0	0	UBOX		
"UTILITIES" Heading Text	1	0	2	0		11	1.50
Company Name Text	1	6	3	0		1	1.00
Index of Sheet Block	1	0	0	0	INDEX		
"INDEX OF SHEETS" Heading Text	1	0	2	0		11	1.50
Subheading Text	1	0	2	0		1	0.75
Remaining Text	1	6	2	0		1	0.75
Design Traffic Data Block	1	0	0	0	DTD		
"DESIGN TRAFFIC DATA" Heading Text	1	0	2	0		11	1.50
Remaining Text	1	6	2	0		1	0.75
Drafted on CADD by (Unit Name)	1	0	1	0		1	0.90
Federal Project Block	1	0	1	0	FEDBOX		
Heading Text	1	0	0	0		1	0.60
"*" Text	1	7	0	0		1	0.75
Shape around Map Area	1	0	5	0			
Plan Sheet Number	1	7	4	0		1	1.30

Table 2.11 Construction Key Sheet - uidz3ckey.dgn Sheet 2 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Project Description Text (above map area)							
"State of New Jersey" & "Department of Transportation"		0	0	0		19	3.75
"PLANS OF" Text	1	6	0	0		19	1.80
"ROUTE & CONTRACT No." Text	1	6	0	0		11	1.80
"FROM TO"	1	6	0	0		11	1.30
"." (Type of Project) Replacement Text	1	6	0	0		19	1.80
"SCALES AS INDICATED" Text	1	6	0	0		19	1.30m
"CITY OF" "TOWN OF" "TOWNSHIP OF" "BOROUGH OF" "COUNTY" "1990"	1	6	0	0		19	1.30
KEY MAP (title under map)	1	0	2	0		11	3.75
Length of Project text (below map area)	1	6	0	0		11	1.80
Standard Specifications Note	1	0	0	0		19	1.80
State Seal of New Jersey					NJSEAL		

Table 2.11 Construction Key Sheet = uidz3ckey.dgn Sheet 3 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
DOT Symbol					DOTKEY		
10000 Meter Bar Scale 20000 Meter Bar Scale 30000 Meter Bar Scale 40000 Meter Bar Scale 50000 Meter Bar Scale 60000 Meter Bar Scale	1	0	1	0	BSKEY1 BSKEY2 BSKEY3 BSKEY4 BSKEY5 BSKEY6	1	.75
Begin State & Federal Project Note Begin Federal Project Note Begin State Project Note Project Stops Note Project Resumes Note End State & Federal Project Note	1				SBBL SBBR SBTL SBTR		
Highway Type	1	6	2	0	HT	1	0.90
Project Categories Heading	1	0	2	0	KPC	1	0.90
Project Categories Description	1	6	2	0	KPCD	1	0.90
Control Section Number	1	6	2	0	CSNUM	1	0.90
ROW Section Heading	1	0	2	0	KPC	1	0.90
ROW Section Description	1	6	2	0	KPCD	1	0.90

Table 2.11 Construction Key Sheet = uidz3ckey.dgn Sheet 4 of 5

Item	Level	Color	Weight	Line Code Number or Name	Cell Name	Font	Text Size (meters)
Baseline Station Equation Note	1				EQBOX		
Text for County Names (in Map Area)	1	6	1	0		19	2.60
Text for Municipality Names (in Map Area)	1	6	1	0		19	1.80
Text for Street Names (in Map Area)	1	4	0	0		23	0.60
Heavy Line Showing Project Limits	5		4	0			
Detail Booklet Note	5	6	3	0		1	1.00
Corporate Lines	32	20	4	@corp-line			
Interstate Highway Shield	60				KS1		

Table 2.11 Construction Key Sheet = uidz3ckey.dgn Sheet 5 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
U.S. Route Shield	60				KS2		
State Highway Route Shield	60				K53		
County Route Shield	60				K54		

Table 2.12 Wipeout Information For All Sheet Files Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Red blocks deed & topo	Active	3	6	4			
Blue blocks deed & topo & ebl	Active	1	6	4			
Green Blocks deed & topo & ebl & prop	Active	2	6	4			
Yellow blocks all reference files	Active	4	6	4			

Table 2.13 General Information for All Sheet Files Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Title Block, Federal Project Block and Unit Name	1						
Sheet Name for Title Block	1	7	5	0		1	1.80
Plan Sheet Number	1	7	4	0		1	1.30
Double Referencing Code Number Block	1	0	7	0	IDNO		
Double Referencing Code Text	1	7	2	0		1	0.75
300 Meter Bar Scale 500 Meter Bar Scale 600 Meter Bar Scale 1000 Meter Bar Scale 2000 Meter Bar Scale	1	0	1	0	BS300 BS500 BS600 BS1000 BS2000	1	0.75
North Arrow - C & G Right North Arrow - C & G Left North Arrow - Plain	1	7	0	0	35B 35A 35	23	0.60

Table 2.13 General Information for All Sheet Files Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Match Line for main baseline Match Line for side street baselines	1	18	8	0	3 MATCH RMATCH		
"match line" text	1	7	2	0		1	1.30
"plan sheet" text	1	7	0	0		1	0.75
Text for Existing General Information	5	7	0	0		23	0.60
Text for Existing R.O.W. Lines	5	7	0	0		23	0.75
Text for Road names	5	7	3	0		23	1.00
Text for Corporate Lines	5	7	3	0		23	1.00
Text for Municipality Information	5	4	4	0		23	1.30
Text for All Proposed Information	5	7	2	0		1	0.75
Text for Proposed R.O.W. Lines	5	7	2	0		1	0.75
Text for Proposed Road Names	5	7	3	0			1.00
Existing Dimension Lines	24	26	0	0			
Proposed Dimension Lines	24	13	1	0			
Terminators	24	22		0	ARROW BALL SQUIGY		

Table 2.14 Construction Legend Sheet = uidlegcs01.dgn Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construction Legend Sheet	1	6 0	4 (outside) 15 (inside)	3 0			
General Notes Heading	1	0	3	0		1	1.50
Text for All Existing Information	5	7	0	0		23	0.60
Text for All Proposed Information	5	7	2	0		1	0.75

Table 2.15 Construction Plan Sheet = uidz3cs*.dgn Sheet 1 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construction Plan Sheet	1	6	4 (outside) 15 (inside)	3 0	BORDER		
Municipality Information	1	7	4	0		1	1.30
Begin State & Federal Project Note Begin Federal Project Note Begin State Project Note Project Strops Note Project Resumes Note End State & Federal Project Note End Federal Project Note End State Project Note	1	6	4	0	PLIMF PLIMS		
Exist. or Prop. Circle Identifier Exist. or Prop. Triangle Identifier Exist. or Prop. Hexagonal Identifier Exist. or Prop. Square Identifier Exist. or Prop. Diamond Identifier	1	6	0 (exist) or 2 (prop.)	0	E11 P11 E12 P12 E13 P13 E14 P14 E15 P15	23 (exist) or 1 (prop.)	0.60 (exist) or 0.75 (prop.)
Proposed Construction Lines (limit of milling, limit of paving, meet existing, etc.)	2	6	4	0			

Table 2.15 Construction Plan Sheet = uidz3cs*.dgn Sheet 2 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construct Notes (Standard Pay items)	4				CNLT CNLT2 CNLT3 CNLT4 CNLT5 CNNRT CNRT2 CNRT3 CNRT4 CNRT5		
Ellipse and Lines	4	6	1	0			
Text	4	6	2	0		1	0.75
Construct Notes (Alternate Pay Items)	4				AILT AILT2 AILT3 AILT4 AILT5 AIRT AIRT2 AIRT3 AIRT4 AIRT5		
Ellipse and Lines	4	6	1	0			
Text	4	6	2	0		1	0.75
Existing Boring Symbol	5	17	0	0	EBORE		
Existing Boring Symbol Text	5	17	0	0		23	0.60
Proposed Boring Symbol	5	17	1	0	BORING		
Proposed Boring Symbol Text	5	17	2	0		1	0.75

Table 2.15 Construction Plan Sheet = uidz3cs*.dgn Sheet 3 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Proposed Test Pit Symbol	5	17	1	0	PIT		
Proposed Test Pit Symbol Edit	5	17	2	0		1	0.75
Clearing Site Limit Lines	6	9	1	@psite-limit			
High and Low Point Symbols	9	21	0	0	HIGH LOW		
Traffic Flow Arrows (if desired)	24	10	3	0	TFLOWL TFLOWR		
Hay Bale Symbol	26	9	0	0			
Easement Lines (Construction)	31	7	4		peasement		

Table 2.16 Tie and/or Grade Plan Sheet = uidz3tg*.dgn Sheet 1 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construction Plan Sheet	1	6 0	4 (outside) 15 (inside)	3 0	BORDER		
Exist. or Prop. Circle identifier Exist. or Prop. Triangle Identifier Exist. or Prop. Hexagonal Identifier Exist. or Prop. Square Identifier Exist. or Prop. Diamond Identifier	1	6	0 or 2	0	E11 P11 E12 P12 E13 P13 E14 P14 E15 P15	23 or 1	0.60 or 0.75
Tie & Alignment Data Box	1	0	0	0	ADBOX		
Main Heading Text	1	0	4	0		1	1.30
Sub-Heading Text	1	0	2	0		1	0.90
Remaining Text	1	6	2	0		1	0.75

Table 2.16 Tie and/or Grade Plan Sheet = uidz3tg*.dgn Sheet 2 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Curve Data Box	1	0	0	0	CDBOX		
Main Heading Text	1	0	4	0		1	1.30
Sub-Heading Text	1	0	2	0		1	0.90
Remaining Text	1	6	2	0		1	0.75
Meet Existing Lines	2	6	4	0			
Existing Boring Symbol	5	17	0	0	EBORE		
Existing Boring Symbol Text	5	17	0	0		23	0.60
Proposed Boring Symbol	5	17	1	0	BORING		
Proposed Boring Symbol Text	5	17	2	0		1	0.75

Table 2.16 Tie and/or Grade Plan Sheet = uidz3tg*.dgn Sheet 3 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Proposed Test Pit Symbol	5	17	1	0	PIT		
Proposed Test Pit Symbol Text	5	17	2	0		1	0.75
High and Low Point Symbols	9	21	0	0	HIGH LOW		
Grade Ticks	33	12	1	0	GT RGT		
Grade Ticks Text	5	12	2	0		1	0.75
Alignment Data Sheet (if desired)	1	6 0	4 (outside) 15 (inside)	3 0	ALIGN		

Table 2.17 Traffic Striping & Sign Sheet = uidz3ts*.dgn Sheet 1 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construction Plan Sheet	1	6 0	4 (outside) 15 (inside)	3 0	BORDER		
Exist. Or Prop. Circle Identifier Exist. Or Prop. Triangle Identifier Exist. Or Prop. Hexagonal Identifier Exist. Or Prop. Square Identifier Exist. Or Prop. Diamond Identifier	1	6	0 or 2	0	E11 P11 E12 P12 E13 P13 E14 P14 E15 P15	23 or 1	0.60 or 0.75
Permanent Sign Table Box	1	0	0	0	PST		
Main Heading Text	1	0	3	0		1	1.80
Sub-Heading Text	1	0	3	0		1	0.90
Remaining Text	1	6	2	0		1	0.75
Construct Notes (Standard Pay Items)	4				CNLT CNLT2 CNLT3 CNLT4 CNLT5 CNRT CNRT2 CNRT3 CNRT4 CNRT5		
Ellipse and Lines	4	6	1	0			
Text	4	6	2	0		1	0.75

Table 2.17 Traffic Striping & Sign Sheet = uidz3ts*.dgn Sheet 2 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construct Notes (Alternate Pay Items)	4				AILT AILT2 AILT3 AILT4 AILT5 AIRT AIRT2 AIRT3 AIRT4 AIRT5		
Ellipse and Lines	4	6	1	0			
Text	4	6	2	0		1	0.75
Proposed Highway Signs	5	17	0	0	PSIGN		
Proposed Vertical Panel	5	17	0	0	PVP		
Traffic Flow Arrows (if desired)	24	10	3	0	TFLOWL TFLOWR		
Set of Traffic Striping Cells	35				TS00		
Text for 4” Solid White Line	35	5	2	0	TS01	1	0.75
Text for 4” Dashed White Line	35	5	2	0	TS02	1	0.75
Text for 4” Solid Yellow Line	35	5	2	0	TS03	1	0.75
Text for 2 - 4” Solid Yellow Lines	35	5	2	0	TS04	1	0.75
Text for 8” Solid White Line	35	5	2	0	TS05	1	0.75
Text for 12” Solid White Line	35	5	2	0	TS06	1	0.75

Table 2.17 Traffic Striping & Sign Sheet = uidz3ts*.dgn Sheet 3 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Text for 24" Solid White Lines Spaced 12' c to c @ 45°	35	5	2	0	TS07	1	0.75
Legend for Traffic Striping Plans	35	5	2	0	TS08	1	0.75
Typical Dashed Line Detail	35	5	2	0	TS09	1	0.75
Parking Stall Detail	35	5	2	0	TS10	1	0.75
Text for 4" Dashed Yellow Line	35	5	2	0	TS11	1	0.75
Text for 12" Solid Yellow Lines Spaced 12' c to c @ 45°	35	5	2	0	TS12	1	0.75
Pavement Marking for Railroad Crossing (rt. Side)	35				RRR		
Lines Forming the 'X'	35	5	8	0			
Two Outer Lines	35	5	15	0			
RR Text	35	5	2	0		1	1.80
Pavement Marking for Railroad Crossing (lt. Side)	35				RRL		
Lines Forming the 'X'	35	5	8	0			
Two Outer Lines	35	5	15	0			
RR Text	35	5	2	0		1	1.80

Table 2.17 Traffic Striping & Sign Sheet = uidz3ts*.dgn Sheet 4 of 4

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
General Notes for Delineators	35				DELGN		
Main Heading Text	35	5	3	0		1	1.00
Remaining Text	35	5	2	0		1	0.75
Legend for Delineators	35	5	2	0	DEL0	1	0.75
Delineators	35	5	1	0	DEL1 DEL1A DEL2		

Table 2.18 Traffic Control Plan Sheet = uidz3tc*.dgn Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Construction Plan Sheet	1	6 0	4 (outside) 15 (inside)	3 0	BORDER		
Exist. Or Prop. Circle Identifier Exist. Or Prop. Triangle Identifier Exist. Or Prop. Hexagonal Identifier Exist. Or Prop. Square Identifier Exist. Or Prop. Diamond Identifier	1	6	0 or 2	0	E11 P11 E12 P12 E13 P13 E14 P14 E15 P15	23 or 1	0.60 or 0.75
Construction Sign Table Box	1	0	0	0	CSLEG		
Main Heading Text	1	0	3	0		1	1.80
Sub-heading Text	1	0	3	0		1	0.90
Remaining Text	1	6	2	0		1	0.75
Traffic Flow Arrows (if desired)	24	10	3	0	TFLOWL TFLOWR		

Table 2.18 Traffic Control Plan Sheet = uidz3tc*.dgn Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Set of Traffic Control Cells	56				TC00		
Construction Sign	56	13	1	0	TC01		
Black Area Fill	60	20	0	6			
Breakaway Barricade	56	13	1	0	TC02		
Drum	56	13	1	0	TC03		
Black Area Fill	60	20	0	6			
Traffic Flow Arrow	56	13	1	0	TC04		
Illuminated Flashing Arrow	56	13	1	0	TC05		
Black Area Fill	60	20	0	6			
Traffic Control Truck	56	13	0	0	TC06		
Sign Designation and Size	56	13	0	0	TC07		
Text	56	13	2	0		1	0.75
Legend for Traffic Control Plans	56	13	0	0	TC08	1	0.75
Traffic Cones	56	13	1	0	TC09		
Black Area Fill	60	20	0	6			
Breakaway Barricade with Sign	56	13	1	0	TC10		
Flagger	56	13	1	0	TC11		
Black Area Fill	60	20	0	6			
Illuminated Flashing Bar	56	13	1	0	TC12		
Black Area Fill	60	20	0	6			
Truck Mounted Impact Attenuator	56	13	1	0	TC13		
Black Area Fill	60	20	0	6			
Signs (Pictures)	56						

Table 2.19 Sign Text Sheet = uidz3sg*.dgn Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Sign Text Sheet	1	6 0	4 (outside) 15 (inside)	3 0	SIGNS		
Sheet Heading (DIRECTIONAL SIGNS)	1	0	4	0		1	2.60
Chart Sub-headings	1	0	1	0		1	0.90
Post Support Sub-headings	1	0	0	0		1	0.60
Signs (Pictures)	56						
No Fill Text & Symbols	56						
Black Fill Text & Symbols	60	20		6			
White Fill Text & Symbols	60	19		6			
Remaining Text & Information	5	7	2	0	1	1	0.75

Table 2.20 Right of Way Key Sheet = uidz3rkey.dgn Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Right of Way Key Map Sheet	1	6 0	4 (outside) 15 (inside)	3 0	RKEY		
Drafted on CADD by (Unit Name)	1	0	1	0		1	0.90
Shape around Map Area	1	0	5	0			
Plan Sheet Number	1	7	4	0		1	1.30
Section Designation Limits (above the map area)							
Section Limit Lines	24	13	1	0			
"SECTION" Text	5	4	1	0		1	1.50
Arrowheads					RARROW		
KEY MAP (title under map)	1	0	2	0		11	3.75
10000 Meter Bar Scale 20000 Meter Bar Scale 30000 Meter Bar Scale 40000 Meter Bar Scale 50000 Meter Bar Scale 60000 Meter Bar Scale	1				BSKEY1 BSKEY2 BSKEY3 BSKEY4 BSKEY5 BSKEY6		
Station Equation Note	1				EQBOX		

Table 2.20 Right of Way Key Sheet = uidz3rkey.dgn Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
R.O.W. Revision Block (if needed)	1	0	0	0	REVBOX		
"Revision" Heading Text	1	0	0	0		1	0.90
All other Heading Text	1	0	0	0		1	0.60
* Replacement Text	1	7	0	0		1	0.60
Text for County Names (in Map Area)	1	6	1	0		19	2.625
Text for Municipality Names (in Map Area)	1	6	1	0		19	1.75
Text for Street Names (in Map Area)	1	4	0	0		23	0.60
Corporate Lines	32	20	4	@corp-line			
Interstate Highway Shield	60				KS1		
U.S. Route Shield	60				KS2		
State Highway Route Shield	60				KS3		
County Route Shield	60				KS4		

Table 2.21 Right of Way Legend Sheet = uidz3gp01.dgn Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
R.O.W. Legend Sheet	1	6 0	4 (outside) 15 (inside)	3 0	RLEG		
Municipality Block	1	0	7	0	ROWMB		
Municipality Text	1	7	2	0		1	1.30
R.O.W. Revision Block	1	0	0	0	REVBOX		
"Revision" Heading Text	1	0	0	0		1	0.90
All other Heading Text	1	0	0	0		1	0.60
*Replacement Text	1	7	0	0		1	0.60
Slopes Lines	5	7	4	2			
Complete Set of R.O.W. Cells	33				ROW00		
Lot Number Label	33	7	2	0	ROW01	1	0.75
Block Number Label	33	7	3	0	ROW02	1	1.00
Deed Book / Page Label	33	7	2	0	ROW03	1	0.75

Table 2.21 Right of Way Legend Sheet = uidz3gp01.dgn Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Now and/or Formerly Owner Label	33	7	3	0	ROW04	23	1.00
Parcel Identification Label (1 Line)	33				ROW05		
Circle and Line	33	7	4	0			
Parcel Information Text	33	7	4	0		1	1.30
Other Text	33	7	3	0		1	1.00
Parcel Identification Label (2 Lines)	33				ROW06		
Parcel Identification Label (1 Line)	33				ROW08		
Parcel Identification Label (2 Lines)	33				ROW08		
Adjacent Common Property Line Label	33	7	1	0	ROW09	23	0.75
Right of Way Line Control Point	33	20	1	0	ROW10		

Table 2.22 R.O.W. Plan Sheet (G.P.M.) = uidz3gp*.dgn Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
General Property Parcel Map Sheet	1	6 0	4 (outside) 15 (inside)	3 0	ROWBRD		
Municipality Block	1	0	7	0	ROWMB		
Municipality Text	1	7	2	0		1	1.30
R.O.W. Revision Block	1	0	0	0	REVBOX		
'Revision' Heading Text	1	0	0	0		1	0.90
All Other Heading Text	1	0	0	0		1	0.60
*Replacement Text	1	7	0	0		1	0.60
Slopes Lines	5	7	4	2			
Complete Set of R.O.W. Cells	33				ROW00		
Lot Number Label	33	7	2	0	ROW01	1	0.75
Block Number Label	33	7	3	0	ROW02	1	1.00
Deed Book / Page Label	33	7	2	0	ROW03	1	0.75

Table 2.22 R.O.W. Plan Sheet (G.P.M.) - uidz3gp*.dgn Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Now and/or Formerly Owner Label	33	7	3	0	ROW04	23	1.00
Parcel Identification Label (1 Line)	33				ROW05		
Circle & Line	33	7	4	0			
Parcel Information Text	33	7	4	0		1	1.30
Other Text	33	7	3	0		1	1.00
Parcel Identification Label (2 Lines)	33				ROW06		
Parcel Identification Label (1 Line)	33				ROW07		
Parcel Identification Label (2 Lines)	33				ROW08		
Adjacent Common Property Line Label	33	7	1	0	ROW09	23	0.75
Right of Way Control Point	33	20	1	0	ROW10		

Table 2.23 R.O.W. Plan Sheet (E.T.M.) = uidz3et*.dgn Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Entire Tract Map Sheet	1	6 0	4 (outside) 15 (inside)	3 0	ROWBRD		
Municipality Block	1	0	7	0	ROWMB		
Municipality Text	1	7	2	0		1	1.30
R.O.W. Revision Block	1	0	0	0	REVBOX		
'Revision' Heading Text	1	0	0	0		1	0.90
All Other Heading Text	1	0	0	0		1	0.60
*Replacement Text	1	7	0	0		1	0.60
Complete Set of R.O.W. Cells	33				ROW00		
Lot Number Label	33	7	2	0	ROW01	1	0.75
Block Number Label	33	7	3	0	ROW02	1	1.00
Deed Book/Page Label	33	7	2	0	ROW03	1	0.75
Now and/or Formerly Owner Label	33	7	3	0	ROW04	23	1.00

Table 2.23 R.O.W. Plan Sheet (E.T.M.) = uidz3et*.dgn Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Parcel Identification Label (1 Line)	33				ROW05		
Circle & Line	33	7	4	0			
Parcel Information Text	33	7	4	0		1	1.30
Other Text	33	7	3	0		1	1.00
Parcel Identification Label (2 Lines)	33				ROW06		
Parcel Identification Label (1 Line)	33				ROW07		
Parcel Identification Label (2 Lines)	33				ROW08		
Adjacent Common Property Line Label	33	7	1	0	ROW09	23	0.75
Right of Way Line Control Point	33	20	1	0	ROW10		

SECTION 3

TRAFFIC SIGNAL & SAFETY ENGINEERING PLANS

3.1 INTRODUCTION

There is a legal need for electrical plans to be maintained throughout subsequent years and future revisions. By keeping all design elements in one file it is easier to maintain file integrity.

Traffic Signal & Safety Engineering will reference the roadway files into their files, for use as base plans. When the plans are complete the reference file data will be copied into the electrical plan sheet file. The copied elements can then be modified to meet electrical plan requirements. See below for this procedure.

3.2 STANDARDS

3.2.1 File Naming Conventions

3.2.1.1 Design Work that is Built/Installed by Contractors:
For Traffic Signal Plans or Highway Lighting Plans that are being designed by a consultant, contact the Bureau of Traffic Signal & Safety Engineering prior to commencement of design work.

For Traffic Signal & Electrical, or Highway Lighting Plans that are designed by in-house design, the following formats apply.
UIDz3elxx.dgn or UIDz3hlxx.dgn where:

UID	=	Directory ID
z3	=	1:300 Scale
"el" or "hl"	=	"Traffic Signal & Electrical" or "Highway Lighting", respectively
xx	=	Plan Sheet Number (00-99)

3.2.1.2 Design Work that is Built/Installed by Internal Work Order:
General format is: wwwwxxxyy.zzz where:

wwwwxxx	=	Traffic Signal Assigned Number
wwww	=	Control Section
xxx	=	Traffic Signal Sequence Number
yy	=	Fiscal Year
zzz	=	Work/Revision ID
		for Traffic Signal & Electrical (nts, tsr, wor, con, pmt, mis)

for Traffic Bureau Revisions (00A, 00B, etc.)

NOTE: When revisions involve electric work, the revision code on a Traffic Bureau file is renamed to reflect the type of electrical work to be performed (nts, tsr, wor, con, pmt, mis).

3.2.2 Electrical File Procedures for Consultant Design

A. Create new design file.
B. Reference in all needed Roadway Files.
C. Rotate the view so the plan sheet will appear horizontal. Be sure to place a note in the file providing all rotation data.
D. Place a blank sheet cell at proper location.
E. Clip out only needed data from reference files.
F. Draw the Traffic plan.
G. Draw the Electrical Plan.

Revise steps F & G until job is submitted.

The following steps are to be performed only when the project is ready to go to contract and NO additional design work is needed.

H. Fence the sheet with all levels on, and move active file elements a known distance away. (When done, these elements must be moved back to their original location.) At this point only the reference files remain.
I. Closely fence reference files and clip copy elements to the active file.
J. By turning on and off the levels of the copied elements (existing, proposed, utilities, etc.) they can be isolated and moved to designated levels.
K. Modify the symbology of elements to Electrical standards.
L. Move active file elements - those moved in step H- back to their original location.

3.2.2.1 Additional Notes Regarding Highway Lighting Files

When all reference file elements have been copied and modified, as previously outlined, up to ten individual sheet files may be copied into one design file. Sheets will be stacked in order, vertically, in such a manner that the bottom of one sheet will align with the top of the next sheet.

3.2.3 File Procedure - In-House Design Work

3.3.3.1 Traffic Signal & Electrical Files

A) The file must be as-built and updated before copying. Copy and re-name the file requiring revision as per Section 3.2.1.2.
B) Revise the drawing as required.

3.3.3.2 Traffic Bureau Revision Files
A) Copy and re-name the file requiring revision as per Section 3.2.1.2. The file must be as-built and updated before copying.
B) Revise the drawing as required.

3.2.4 Level Assignments
Electrical and Traffic plan sheet level assignments and symbologies are presented in Tables 3.1 through 3.3.

[TABLES BEGIN ON NEXT PAGE]

Table 3.1 Highway Lighting & Electrical Plan Sheet Sheet 1 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Border Sheet	1			Included in seed file			
Existing Topo	1	2	0	use roadway standards			
Existing ROW	1	2	2	@row			
Proposed Construction	2	3	1	use roadway standards			
Proposed ROW	2	3	2	@row			
Existing Electrical Foundations	3				ESFT		
Proposed Foundation Removal	3	1		1			
Existing Junction Boxes	5				EJBT EFOJB EJB		
Existing J.B. Foundations	5				EJBF EJBFM		
Existing Conduit	5	1	1	3			
Existing Meter Cabinet Foundations	5				EMCF EEP EPMC E2MMC		
Existing Loop Detectors	5	1	1	0			

Table 3.1 Highway Lighting & Electrical Plan Sheet Sheet 2 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters
Proposed Electrical Standard Foundations	4				PSFT		
Proposed Junction Boxes	6				PJBT PFOJB PJB		
Proposed J.B. Foundations	6				PJBF PJBFM		
Proposed Conduit	6	3	1	3			
Proposed Meter Cabinet Foundations	6				EMCF EEP EPMC E2MMC		
Proposed Loop Detectors	6	3	1	0			
Existing Lighting Arm Assemblies	7	1	1	0			
Existing MV or SV Luminary					ELUMIN		
Existing Pendent - Vertical Lighting Unit					EPEN		
Existing Offset Lighting Unit					EEXP		
Existing Under-deck Lighting Unit					EUDLU		
Existing Tower Lighting Unit					ETOWER		

Table 3.1 Highway Lighting & Electrical Plan Sheet Sheet 3 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Proposed Lighting Arm Assemblies	8	3	1	0			
Proposed MV or SV Luminary					PLUMIN		
Proposed Pendent - Vertical Lighting Unit					PPEN		
Proposed Offset Lighting Unit					PEXP		
Proposed Under-deck Lighting Unit					PUDLU		
Proposed Tower Lighting Unit					PTOWER		
Existing Wiring Diagram	9	0	0	0			
Existing Signal Notes					ENTS		
Existing Signal Face ID					ESIGS		
Existing Pedestrian Signal Face ID					EPEDS		
Existing Push Button ID					EPBS		
Existing Loop Detector ID					ELOOPS		
Existing Revision & As Built Delta					EDELTA		
Existing Microwave Detector ID					EMWID		
Proposed wiring diagram	10	0	0	0			
Proposed Signal Notes					CINS		
Subtitle Text	10	0	0	0		1	0.75
Proposed Signal Face ID					PSIGS		
Proposed Pedestrian signal Face ID					PPEDS		
Proposed Push Button ID					PPBS		
Proposed Loop Detector ID					PLOOPS		

Proposed Revision & As Built Delta					PDELTA		
Proposed Microwave Detector ID					PMWID		

Table 3.1 Highway Lighting & Electrical Plan Sheet Sheet 4 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Existing Lighting Notes					ENTSL		
Proposed Lighting Notes					CINL		
Proposed Traffic Signal Removal	13	3	1	1			
Existing Utilities	23	5	1	Use Roadway			
Proposed Utilities	24	5	1	Use Roadway			
Electric Title Block	25						
Electrical Sheet Information	25						
Existing Traffic signal Head					ESIGHD		
Existing Pedestrian Signal Head					EPEDHD		
Existing Traffic Head for “TA” Assembly					ETASHD		
Existing Signal Indication Number					ESIGID		
Existing Pedestrian Push Button					EPB		
Existing Traffic Signal Standards	31	1	1	0			
Existing Traffic Signal Assemblies	31	1	1	0			
Existing Mast Arm Signs					EMAS		

Table 3.1 Highway Lighting & Electrical Plan Sheet Sheet 5 of 5

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Proposed Traffic Signal Standards	32	3	1	0			
Proposed Traffic Signal Head					PSIGHD		
Proposed Pedestrian Signal Head					PPEDHD		
Proposed Traffic Head for “TA” Assembly					PTASHD		
Proposed Signal Indication Number					PSIGID		
Proposed Pedestrian Push Button					PPB		
Proposed Traffic Signal Assemblies	32	3	1	0			
Proposed Mast Arm Signs					PMAS		

Table 3.2 Electrical Detail Sheet Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Existing Load Center Schematic Cells	1	0	1	0			
Offset Lighting Unit					EEXPS		
MV& SV Lighting Unit					EHPLS		
Pendent Lighting Unit					EPENS		
Under-deck Lighting Unit					EUDLUS		
250 Watt Offset Lighting Unit					E250ES		
250 Watt HPS Lighting Unit					E250CS		
Sign Lighting Unit					ESLUS		
400 Watt Offset Lighting Unit					E400ES		
Tower Lighting Unit					ETWRS		
Proposed :Load Center Schematic Cells	2	3	1	0			
Offset Lighting Unit					EEXPS		
MV& SV Lighting Unit					EHPLS		
Pendent Lighting Unit					EPENS		
Under-deck Lighting Unit					EUDLUS		
250 Watt Offset Lighting Unit					E250ES		
250 Watt HPS Lighting Unit					E250CS		
Sign Lighting Unit					ESLUS		
400 Watt Offset Lighting Unit					E400ES		
Tower Lighting Unit					ETWRS		

Table 3.3 Traffic Signal Plan Sheet 1 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Boarder Sheet	1			included in seed file			
Existing Topo	1	2	0	use roadway standards			
Existing ROW	1	2	2	@row			
Proposed Construction	2	3	1	use roadway standards			
Proposed ROW	2	3	2	@row			
Existing Lighting Assemblies	7	1	1	0			
Existing MV or SV Luminary					ELUMIN		
Existing Pendent - Vertical Lighting Unit					EPEN		
Existing Offset Lighting Unit					EEXP		
Existing Under-Deck Lighting unit					EUDLU		
Existing Tower Lighting Unit					ETOWER		
Proposed Lighting Assemblies	8	3	1	0			
Proposed MV or SV Luminary					PLUMIN		
Proposed Pendent - Vertical Lighting Unit					PPEN		
Proposed Offset Lighting Unit					PEXP		
Proposed Under-Deck Lighting Unit					PUDLU		
Proposed Tower Lighting Unit					PTOWER		

Proposed Traffic Signal Removal	13	3	1	1			

Table 3.3 Traffic Signal Plan Sheet 2 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Existing Utilities	23	5	1	7			
Proposed Utilities	24	5	1	7			
Traffic Title Block	27						
Traffic Sheet Information	27						
Existing Traffic Signal Pole	29	1	1	0			
Proposed Traffic Signal Pole	30	3	1	0			
Existing Traffic Signal Standards	31	1	1	0			
Existing Traffic Signal Head					ESIGHD		
Existing Pedestrian Signal Head					EPEDHD		
Existing Traffic Head for “TA” Assembly					ETASHD		
Existing Signal Indication Number					ESIGID		
Existing Pedestrian Push Button					EPB		
Existing Traffic Signal Assemblies	31	1	1	0			
Existing Mast Arm Signs					EMAS		
Proposed Traffic Signal Standards	32	3	1	0			
Proposed Traffic Signal Head					PSIGHD		
Proposed Pedestrian Signal Head					PPEDHD		
Proposed Traffic Head for “TA” Assembly					PTASHD		
Proposed Signal Indication Number					PSIGID		
Proposed Pedestrian Push Button					PPB		

Proposed Traffic Signal Assemblies	32	3	1	0			
Proposed Mast Arm Signs					PMAS		

Table 3.3 Traffic Signal Plan Sheet 3 of 3

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Proposed Area of Detection	34	3	2	1			
Proposed Roadway Markings	36						
Stop Line	36	0	7	0			
White Paint Line	36	0	2	0			
Yellow Paint Line	36	4	2	0			
Core Line	36	4	7	0			
Proposed Turn Arrows	36						
Thru Arrow					ARROWT		
Left Turn Arrow					ARROWL		
Right Turn Arrow					ARROWR		
Thru & Right Turn Arrow					ARRORT		
Thru & Left Turn Arrow					ARROLT		
“ONLY”					ONLY		
Proposed Sign Legend	38						
Subtitle Text	38	0	2			1	1.30
All Notes	38	0	0			1	0.75
Sign Text	38	0	1			1	0.90
Proposed Lane Dimensions	38	0	0	0			
Text Description For All Paint Lines, Tapers & Transitions (on lv=36)	38	0	0	0			
Existing Regulatory Signs	41				EPMSR		
Proposed Regulatory Signs	42				PPMSR		
Existing Warning Signs	43				EPMSW		
Proposed Warning Signs	44				PPMSW		

Existing Guide Signs	45				EPMSG		
Proposed Guide Signs	46				PPMSG		

SECTION 4

LANDSCAPE PLANS

4.1 INTRODUCTION

The standards presented here are similar to those found in the Roadway section. Landscape will reference the roadway files into their landscape design files, for use as base plans.

4.2 STANDARDS

For consultant projects where the landscape work is being done by DOT forces two workflow methods have been developed.

4.2.1 Workflow "A"

Hard copies of appropriate plan sheets shall be provided to the department. These sheets will then be scanned and used as base plans in the same way reference files are used. It is important to note that the plans must not be submitted until the proposed work is at a stage where no significant changes are likely to occur.

4.2.2 Workflow "B"

All necessary files shall be provided. All information necessary to attach reference files must be included. This information must include rotation angle, rotation point, scale, logical name, and any other information that would help a user attach a new reference file. A consistent naming system shall be used when attaching reference files.

4.2.3 File Names

xxxyyyyyyy.dgn where:

xxx = Directory Number/UID
yyyyyy = Landscape Plan Sheet Number

4.2.4 Level Assignments

Level assignments and element symbology are presented in Table 4.1.

Table 4.1 Landscape Plan Sheet Sheet 1 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Border	1				BLANKM		
Proposed Trees	4				SHADE1 CONIF1 ORNAM1 SPEC1		
Proposed Shrubs and Hedges	5				3HEDGE 4HEDGE 5HEDGE 6HEDGE 7HEDGE		
Shrub Area Light Gray	5	4	0	1-5			
Shrub Area Medium Gray	5	4	0	6			
Shrub Area Dark Gray	5	4	0	7			
Areas of Planting Bed, Seeded or Naturalized & Hedge Lengths Note: NOT SHOWN ON PLAN SHEETS	7		1				
Planing Labels	8		1			1	0.75
Existing Vegetation to be preserved	9						
To Be Planted Box	10	0	1	0			
“TO BE PLANTED” text	10	0	2			1	1.50
To Be Planted SUBHEADINGS text	10	0	1			1	0.75
To Be Planted Item Text	11	0	1			1	
Wild Flower Seeding Light Gray	12	4	1	1-5			
Wild Flower Seeding Medium Gray	12	4	1	6			
Wild Flower Seeding Dark Gray	12	4	1	7			
Planting Setback	14						
NOTE: NOT SHOWN ON PLAN SHEET							

Naturalized Area Light Gray	15	4	1	1-5			
Naturalized Area Medium Gray	15	4	1	6			
Naturalized Area Dark Gray	15	4	1	7			

Table 4.1 Landscape Plan Sheet Sheet 2 of 2

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Wetland Limits	18						
Hatching for Wetland Zone Delineation	19						
Decorative Sidewalk	20						

SECTION 5

STRUCTURAL PLANS

5.1 INTRODUCTION

Because most plans produced by the structures unit are not referenced to the CADD files of other bureaus, the structural plan requirements are not as restrictive or detailed. However, for those things which are specified, adherence to the Standard is required. BRIDGE DESIGN FILES MAY CONTAIN NO MORE THAN 3 PLAN SHEETS.

5.2 STANDARDS

5.2.1 File Naming Convention

5.2.1.1 Replacement Projects or New bridges: rtxxxyyzzn.dgn where:
xxx = Route Number zz codes: ab = abutment; pr = pier;
yy = Operator Initials gp = GP&E; ds = deck slab;
zz = Plan Sheet Code fr = framing; etc.
n = Plan Sheet Number

5.2.1.2 Deck Patching Contracts: dpxxxxyyzz.dgn where:
xxxx = Contract No.
yy = Operator Initials zz codes: jt = joint details;
zz = Plan Sheet Code rp = deck repair details;
tr = traffic control; etc.

5.2.1.3 Culverts, Noisewalls, Guiderail, Retaining Walls: cccxxxyyzz.dgn:
ccc = Structure codes: cu = culvert; rw = retaining wall;
nw = noisewalls; msc = miscellaneous;
gr = guiderail
xxx = Route Number
yy = Operator Initials
zz = Plan Sheet code zz codes: gp = GP&E; sb = slab details; etc.

5.2.1.4 Unscheduled Work: usxxxxxxyy.dgn where:
xxx = Project Description (one word)
yy = Operator Initials

5.2.1.5 Non-Project Office Work: sqxx.dgn
xx = Squad Number

5.2.1.6 Managerial Work: mgxxxxyy.dgn
xxx = Project Description (one word)
yy = Operator Initials

5.2.1.7 Base File For Roadway construction Plans
prop_b

5.2.2 Level Assignments

See Tables 5.1 & 5.2

Table 5.1 Bridge Plan Sheet Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Border	1				BLANKM		
General Line Work	2		1	0			
General Text	3		1			23	3 mm*
Subtitle Text	3		2			1	3.5 mm*
Title Text	3		3			1	5 mm*
Dimension Lines	3	0	0				
Dimension Text	3		1			23	3 mm*
Automatic Dimension Lines	4		0	0			
Automatic Dimension Text	4		1			23	3 mm*
Borings	5						
Cross Hatching/Patterning	6		0	0			
Existing Information	7		0				
All Utilities	8						
Reinforcement	9		3	7			

*NOTE: Because Bridge plans combine many different scales on one plan sheet, text size shown is the plotted letter size.

Table 5.2 Bridge Base File prop-b.dgn Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
General Line Work of Proposed Bridge Including wing Walls Bridge Curb Lines Median Curb	2	10	1	0			
Text for Beginning & End of Bridge	41	18	2	0		1	0.75
Text for Structure Number	41	18	2	0		1	0.75

SECTION 6

MAJOR ACCESS PLANS

6.1 INTRODUCTION

Highway Access plans are developed from Roadway files. Appropriate data from EBASE, DEED, TOPO, PBASE, PROP, and STRIPE will be referenced to create the Access plan.

6.2 STANDARDS

6.2.1 File Names:

General Format is bxxxlyyy.dgn where:

bxxx = block and its Number
lyyy = lot and its Number

The general format provided above shall be used when files only involve one property. When adjacent properties are involved, the common block number is used with both lot numbers separated by a hyphen (i.e. b23l45-46.dgn, where b23 is the block number, and l45-46 are lots 45 & 46).
If a project spans several townships and block/lot numbers are repeated, the second set shall be prefixed with "2" or "3" if necessary.
When commercial properties are involved, the filename may reflect the name of the major property owner (eg. walmart.dgn).
When base data is referenced for base plans, the logical attachment names must conform to the naming system established for Roadway files.

6.2.2 Level Assignments

See Table 6.1 (Next Page)

Table 6.1 Access Plan - bxxxlyyy.dgn Sheet 1 of 1

Item	Level	Color	Weight	Line Code Number or UDL Name	Cell Name	Font	Text Size (meters)
Border	1				MBLANK		
Legend	1				MACLEG		
General Note	1				MNOTE		
Block & Lot Text	1				MBLOCK		
Owner Data	1				MOWN		
North Arrow	1			(roadway cell)	35		
General Text	5		0			23	1.00
Driveway Data	5		2			1	0.75
Existing Driveway Opening	62	3	5	0			
Proposed Driveway	62	1	0	0			
Topsoil & Seeded Area	62	2	0	0			
Red wipeout deed & topo	Active	3	6	4			
Blue wipeout deed & topo & ebl	Active	1	6	4			
Green wipeout deed & topo & ebl & prop	Active	2	6	4			
Yellow wipeout all reference files	Active	4	6	4			
